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EXAMINER

CHOW, CHARLES CHIANG

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/531,051

Applicant(s)

MIURA ET AL.

Examiner

Charles Chow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-5, 6-15/3-5, 16-17/5 is/are allowed.
- 6) ☒ Claim(s) 1-2, 7-9/1, 7-9/2, 10-11/2, 15/2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Detailed Action

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title, "Wireless communication device", is not clearly indicating the key features of the invention, for the suppressing an abrupt gain change of the transmitted electric power by deciding, controlling, of the derived error, for the smoothly controlling of the transmitted power.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 16 of independent claims 3-5, it is unclear about the "a below-described gain control correction value". In the claims 3-5, it is not particularly point out with definition of the below-described gain control correction value.

For the examination purpose, It is assume the below-described gain control correction value to be the decided result of the large or the small value relative to the threshold value of the set transmitted electric power.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an

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application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 2, 6/2 are rejected under 35 U.S.C. 102(e) as being anticipated by Weiland et al. [US 5,590,408].

For claim 2, Weiland et al. [Weiland] teaches a radio communication device [Fig. 2, radio telephone with power control correction, col. 3, lines 10-12],

in which transmitted electric power is set in accordance with a transmitted electric power control bit sent to a self-station from the other station [receiving power control command from cell site , col. 5, lines 15-22; to control the transmit power level, col. 4, lines 38-44] and

the gain of a variable gain amplifier of a transmitting system is controlled so as to obtain the set transmitted electric power [to control the transmitting gain of the variable amplifiers 201, 202 & to set the transmitted power via summer 210, limiting control 205, DAC 203, bias control 218],

characterized in that the radio communication device [radio telephone] comprises an electric power value/gain control signal converting part for converting the set transmitted electric power to a gain control signal of a form for controlling the gain of the variable gain amplifier [DAC 203, bias control 218, converts gain control signal from 205, for applying to the variable gain amplifiers 202, 210 respectively, Fig. 2];

a transmitted electric power detecting part for detecting the transmitted electric power of the self-station [power detector 207 detects transmitted power from PA 201] ;

an error calculating part for comparing the detected transmitted electric power with the gain control signal to calculate an error between them [comparator 301 of 205 compares the detected transmitted power from 207 via 209, with the gain setting from the cell site at

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206/210 & open loop gain control at 210, Fig. 3-Fig. 5, col. 5, lines 5-22 & col. 3, line 64 to col. 4, line 3];

a transmitted electric power deciding part for deciding a large or a small value relative to the threshold value of the set transmitted electric power [control 205, in Fig. 3, makes determination for outputting the maximum allowable setting via multiplexer 302 or for outputting directly from summer 210, to prohibit the transmitter from exceeding its maximum point & preventing saturation, col. 5, lines 5-34];

an error-integrating part that can switch whether or not the calculated error is integrated in accordance with the decided result of the large or the small value relative to the threshold value of the transmitted electric power [the multiplexer 302 for selecting the transmitting gain at "b" or maximum gain setting at "a", threshold by the maximum allowable setting, col. 5, lines 5-34], and

an adding part [220] for adding the integrated result to the gain control signal and controlling the gain of the variable gain amplifier by an obtained adding signal [summer 210 adds the closed loop power control from cell site at 206 to the open loop gain setting, to control the gain of the amplifiers 201, 202 via power limiting control 205, Fig. 2, col. 4, lines 5-10; & the adder in Fig. 6 for adding open loop power control, output of closed loop accumulator 605 & output of 606 in Fig. 6].

For claim 6/2, Weiland teaches a radio communication device [radio telephone in Fig. 2], characterized in that the on/off control of the transmitted electric power detecting part or the error calculating part is carried out in accordance with the decided result of the large value or the small value relative to the threshold of the transmitted electric power of the transmitted electric power deciding part [the on/off control of gain control at "a" or "b" of multiplexer 302 in Fig. 3, from the error calculating part 206, 209, in accordance with the

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comparison of the gain setting at 301 for less or equal/greater than the maximum gain setting, as the threshold, Fig. 3, col. 5, lines 5-34].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Kitade et al. [US 6,138,033].

For claim 1, Weiland teaches a radio communication device [Fig. 2, radio telephone with power control correction, col. 3, lines 10-12],

in which transmitted electric power is set in accordance with a transmitted electric power control bit sent to a self-station from the other station [receiving power control command from cell site , col. 5, lines 15-22; to control the transmit power level, col. 4, lines 38-44] and

the gain of a variable gain amplifier of a transmitting system is controlled so as to obtain the set transmitted electric power [to control the transmitting gain of the variable amplifiers 201, 202 & to set the transmitted power via summer 210, limiting control 205, DAC 203, bias control 218],

characterized in that the radio communication device [radio telephone] comprises an error calculating part for obtaining an error between the detected transmitted electric power of the self-station and the set transmitted electric power; and

a transmitted electric power detecting part for detecting the transmitted electric power of the self-station [power detector 207 detects transmitted power from PA 201] ;

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an error calculating part for obtaining an error between the detected transmitted electric power of self-station and the set transmitted electric power [calculating error by comparing, at 301, the detected transmitted power from 207 via 209, with the gain setting from the cell site at 206/210 & open loop gain control at 210, Fig. 3-Fig. 5, col. 5, lines 5-22 & col. 3, line 64 to col. 4, line 3];

a buffer unit [accumulator 401, Fig. 4] for preventing the change of the transmitted electric power over a threshold value [maximum allowable setting, col. 5, lines 15-14 & limiting indicator in Fig. 4] when the transmitted electric power is controlled to cross the threshold value as the detection limit of the transmitted electric power of the transmitted electric power detecting part [accumulator 401 together with 402-405 for providing power limiting control setting, via power limiting indicator control, as the threshold, in Fig. 4, col. 5, lines 15-34],

Weiland fails to teach the preventing the obtained error from greatly changing upon the change of the transmitted electric power over a threshold value.

Kitade teaches the preventing the obtained error from greatly changing upon the change of the transmitted electric power over a threshold value [the restriction of transmission power to have big, sudden, change; having only maximum allowance to be added to previous transmission power value, abstract, col. 3, lines 8-62; base station instructs the mobile station about the maximum allowance, col. 8, lines 30-40], in order to reliably change the transmission power with less interference to other user [col. 3, lines 20-25]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Weiland's prohibiting the transmitter from exceeding the maximum allowable setting [col. 5, lines 14-15] with Kitade's restriction of the big change amount in the

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transmission power, in order to reliably change the transmission power with less interference to other user.

5. Claims 7/1, 9/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Kitade, as applied to claim 1 above, and further in view of Ichikawa [US 6,532,357 B1].

For claim 7/1, Weiland teaches a radio communication device [radio telephone in Fig. 2]. Weiland & Kitade fail to teach the changing of the deciding part can change the output timing.

Ichikawa teaches the transmitted electric power deciding part can change the output timing of the decided result [the switch control 25, as the deciding part, to switch, change output timing, a number of times with the period to stop the operation of variable amplifier, according to the comparison with the predetermined threshold, col. 4, lines 17-43; col. 7, lines 8-24], in order to save the power consumption [col. 4, lines 41-43]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Weiland, Kitade with Ichikawa's transmitting period control for stopping the amplifier operation, in order to save the power consumption.

For claim 9/1, Weiland teaches a radio communication device [radio telephone in Fig. 2]. Weiland & Kitade fail to teach the characterized in that the transmitted electric power deciding part can change the threshold value.

Ichikawa teaches the characterized in that the transmitted electric power deciding part can change the threshold value [the changing of the threshold with more than one threshold, col. 4, lines 17-30], using the same reasoning in claim 7/1 above to combine Ichikawa to Weiland, Kitade.

6. Claims 8/1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Kitade, as applied to claim 1 above, and further in view of Love et al. [US 5,771,461].

For claim 8/1, Weiland teaches a radio communication device [radio telephone in Fig. 2]. Weiland & Kitade fail to teach the characterized in that the transmitted electric power deciding part can change the output update cycle of the decided result.

Love et al. [Love] teaches the characterized in that the transmitted electric power deciding part can change the output update cycle of the decided result [at step 639, the transmitting gain updating rate is decreased to a 4th rate, col. 12, line 65 to col. 13, line 12, Fig. 6, Fig. 2, Fig. 9, col. 2, lines 14-26], for a better signal quality [col. 2, lines 20-26]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Weiland, Kitade with Love's rate of decreasing transmitting gain, in order to improve the signal quality.

7. Claims 7/2, 9/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Ichikawa-'357 B1.

For claim 7/2, Weiland teaches a radio communication device [radio telephone in Fig. 2], but fails to teach the changing of the deciding part can change the output timing.

Ichikawa teaches the transmitted electric power deciding part can change the output timing of the decided result [the switch control 25, as the deciding part, to switch, change output timing, a number of times with the period to stop the operation of variable amplifier, according to the comparison with the predetermined threshold, col. 4, lines 17-43; col. 7, lines 8-24], in order to save the power consumption [col. 4, lines 41-43]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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improve Weiland with Ichikawa's transmitting period control for stopping the amplifier operation, in order to save the power consumption.

For claim 9/2, Weiland teaches a radio communication device [radio telephone in Fig. 2], but fails to teach the characterized in that the transmitted electric power deciding part can change the threshold value.

Ichikawa teaches the characterized in that the transmitted electric power deciding part can change the threshold value [the changing of the threshold with more than one threshold, col. 4, lines 17-30], using the same reasoning in claim 7/2 above to combine Ichikawa to Weiland.

8. Claims 8/2, 15/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Love-'461.

For claims 8/2 & claim 15/2, Weiland teaches a radio communication device [radio telephone in Fig. 2], but fails to teach the characterized in that the transmitted electric power deciding part can change the output update cycle of the decided result; the characterized in that the error calculating part can change the output update cycle of the error.

Love teaches the characterized in that the transmitted electric power deciding part can change the output update cycle of the decided result; characterized in that the error calculating part can change the output update cycle of the error [at step 639, the transmitting gain updating rate is decreased to a 4th rate, col. 12, line 65 to col. 13, line 12, Fig. 6, Fig. 2, Fig. 9, col. 2, lines 14-26], for a better signal quality [col. 2, lines 20-26]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Weiland with Love's rate of decreasing transmitting gain, in order to improve the signal quality.

9. Claim 10/2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Mucke et al. [US 5,548,616].

For claim 10/2, Weiland teaches a radio communication device [Fig. 2], but fails to teach the characterized in that the electric power value/gain control signal converting part has a ramping output function to the gain control signal.

Mucke et al. [Mucke] teaches the characterized in that the electric power value/gain control signal converting part has a ramping output function to the gain control signal [the multiplying of the Rx_slope 74 to Tx_gain 72 at 61, for ramping the gain control signal with the Tx_slope 74, Fig. 3, col. 7, lines 24-49], in order to modify the transmit gain with the Tx_slope for the transmit power adjustment. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Weiland' with Mucke's Tx_slope, in order to modify the transmit gain with the Tx_slope for the transmit power adjustment.

10. Claim 11/2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland in view of Wenzel et al. [US 7,031,677 B2].

For claim 11/2, Weiland teaches a radio communication device [Fig. 2], but fails to teach the characterized in that the electric power value/gain control signal converting part can select the presence or absence of a ramping output to the gain control signal.

Wenzel et al. [Wenzel] teaches the characterized in that the electric power value/gain control signal converting part can select the presence or absence of a ramping output to the gain control signal [the controller 10 selects the power ramp from 20/90, V(t) or selects the direct power setting via D/A 40, a(t), col. 4, lines 15-44, Fig. 1-3], such that the transmit gain

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could be flexibly setup via ramping the gain control or via the direct gain setting. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Weiland with Wenzel's ramping or without ramping, by direct setting the power level, such that the transmit power level could be conveniently setup.

Allowable Subject Matter

11. The following is an examiner's statement of reasons for allowance:

Claims 3-5 are allowable over the prior art of record. The prior arts fail to teach the allowable features, singly, particularly, or in combination.

The prior arts fail to teach the features in independent **claims 3-5**, for

an error deciding part for deciding whether or not an input signal **from the switch part** is located within a tolerance to output a correction value corresponding to the decided result, **together with the features for**

an integrating part for integrating the outputted correction value and outputting an integrated result as the gain control correction value;

an adding part for adding the set transmitted electric power **to the gain control correction value**; and

an electric power value/gain control signal converting part for converting the added result to a gain control signal of a form for controlling the gain of the variable gain amplifier and outputting the gain control signal to the variable gain amplifier.

The dependent claims 6-15/3-5, 16-17/5 are also allowable due to their dependency upon the allowable independent claims above and the having additional claimed features.

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The closest prior art, **Weiland [US 5,590,408]** teaches the error deciding in 206, 209, adder 210, but the switch, Mux 302, is located after adder 210 [Fig. 2-4], & also lack of integrating the outputted correction value.

Sahota [US 6,819,938] teaches the integrator 144 in 120 for integrating the output of adder 118 for the gain controlling of the transmitting amplifier 122, 124 [Fig. 6, Fig. 4], but fails to teach the integrating of the correction value, then, adding the correction value to the set transmitted power.

Other prior arts in below has been considered, but they fail to teach the above allowable features.

Mucke et al. [US 5,548,616] teaches the transmitting power level control [Fig. 1, Fig. 5, Fig. 7, Fig. 9], having adder 42 for Tx open loop power 38 & Tx closed loop 40, limiter 43, slope corrector 36 for the Tx gain setting, but fails to teach the above allowable features.

Mollenkopf et al. [US 6,377,786] teaches the gain control of transmitting power, having the transmit power tracking loop 216 [Fig. 2-3, abstract], but fails to teach the above allowable features.

Takano et al. [US 2006/0189,285 A1] teaches the transmitting gain control in 100 for the AM & PM, modulations [Fig. 1 & its description in specification], having switch SW1-2, gain controller 160 for variable amplifier IVGA, IMVGA in the control loop, but fails to teach the above allowable features.

Other prior arts are also considered. They are: **Ezuka [US 2003/0231,058 A1]**, **Wenzel et al. [US 7,031,677 B2]**, **Jensen [US 5,159,283]**, **Lunch et al. [US 6,718,180 B1]**, **Miyake [US 5,732,334]**, **Saruwatari et al. [US 7,155,251 B2]**, **Son et al. [US 7,167,045 B1]**, **Kurby et al. [US 6,252,455 B1]**.,

Any comments considered necessary by applicant must be submitted no later than the

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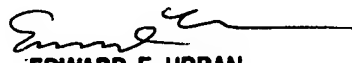
payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow C.C.

February 1, 2007.


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